USE OF SUMMER FOODS BY MOOSE
by
MIKHAILOV, A.
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Translation by William O. Pruitt, Jr.
PP. 1-3 Table 1 & 2

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Various investigations have gathered much material on species and seasonal and geographic characteristics of food of moose. No less than 355 different kinds of plants are consumed by moose (A. Kaletskii,1969). The Laboratory of Moose Management of the Kostroma Agricultural Experiment Station of the Ministry of Agriculture R.S.F.S.R. is in charge of work on commercial utilization of moose. Along with working out zootechnical methods and techniques of raising and breeding, the Laboratory of Moose Management engages in studies of rations, chemical composition (Table 1) and digestibility of moose foods (Table 2).

In summer moose have a great choice of food: leaves and green sprouts of trees and shrubs, mushrooms, forest plantations, flood-plain forests and aquatic plants. As our studies showed, summer foods contain a rich assortment of nourishing material. In Table 1 appear the chemical constituents of some of the moose foods we studied. The samples of twig foods investigated were collected in August 1970, grassy plants in June 1971 from forest blocks adjoining the moose farm, permanent sites of summer fattening of moose herds.

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Laboratory analysis of chemical constituents were carried out by generally accepted methods of zooanalysis. In presence of protein tree leaves are not inferior to legumes. In woody summer foods protein is less than 0.5-1.0 percent in comparison with tree leaves. In them the cellulose contents and nitrogen-free extracts are increased. Tree leaves and twigs without leaves are rich in carotene. Grassy plants are poorer in nutrients than are tree leaves and twigs. Leaves and twigs are also rich in calcium and phosphorus.

The moose organism during its evolutionary development, has become adapted to using forest foods effectively. Our experiments were conducted to clarify the digestibility of summer woody foods of moose. The experiments were conducted by VIZh methods in August 1970 on three moose aged 15 months. Their ration consisted of 10 kg. of aspen (up to 0.5 cm. diameter) and 5 kg. birch (up to 0.3 cm. diameter) twigs with leaves. Digestibility of organic material of summer green woody food reached 55 percent, protein -56 percent (Table 2). An abundance of high quality green food in summer, characterized by good nourishment and high-digestibility allows moose during the vegetative period to obtain a well-fed condition, to develop healthy offspring and to prepare for the rut and for winter.

The study of summer rations showed that an adult moose, upon consuming 40 kg. of summer food, receives 10-12 feeding units, 900-1100 grammes digestible protein, 2000-2800 grammes carotene, 120-160 grammes calcium, about 40 grammes phosphorus. Such a ration secures for moose

all requirements in a food substance, except mineral nutrients especially phosphorus. Our future studies will permit us to determine the role of mineral nutrients in summer moose food.

Table 1

CHEMICAL CONSTITUENTS OF SUMMER MOOSE FOODS (%)

Type of Food	Number of Samples	Total Moisture	Protein	Fat	Cellulose	Nitrogen-free Extractable Matter	Ash	Ca gm/kg	P gm/kg	Carotene mg/kg
Aspen leaves	3	57,0	5,3	2,9	8,7	23,6	2,5	6,9	1,3	94
Birch leaves	3	61,8	5,2	2,7	6,6	21,9	1,8	4,5	1,2	75
Goat-willow (Salix caprea) leaves	3	64,8	5,7	1,6	6,9	18,3	2,7	9,0	1,0	70
Mountain ash leaves	3	53,9	4,4	1,6	6,7	30,5	2,9	6,6	1,8	70
Aspen twigs with leaves (diam. of twigs up to 0.5 cm.)	3	54,0	4,8	2,5	11,2	24,8	2,7	8,5	1,2	90
Birch twig with leaves (diam. of twigs up to 0.3 cm.)	5	54,5	5,0	3,3	9,2	26,4	1,6	4,2	1,1	60
Goat-willow twigs (diam. up to 0.5 cm.)	3	59,3	5,0	1,8	10,6	20,6	2,7	9,7	1,0	70
Willow-herb (Epilobium)	3	83,0	2,5	0,7	2,6	10,0	1,2	1,3	0,9	50
Elm-leaved Filipendula	3	74,7	4,2	1,3	4,6	13,9	1,3	1,1	0,9	35

Table 1

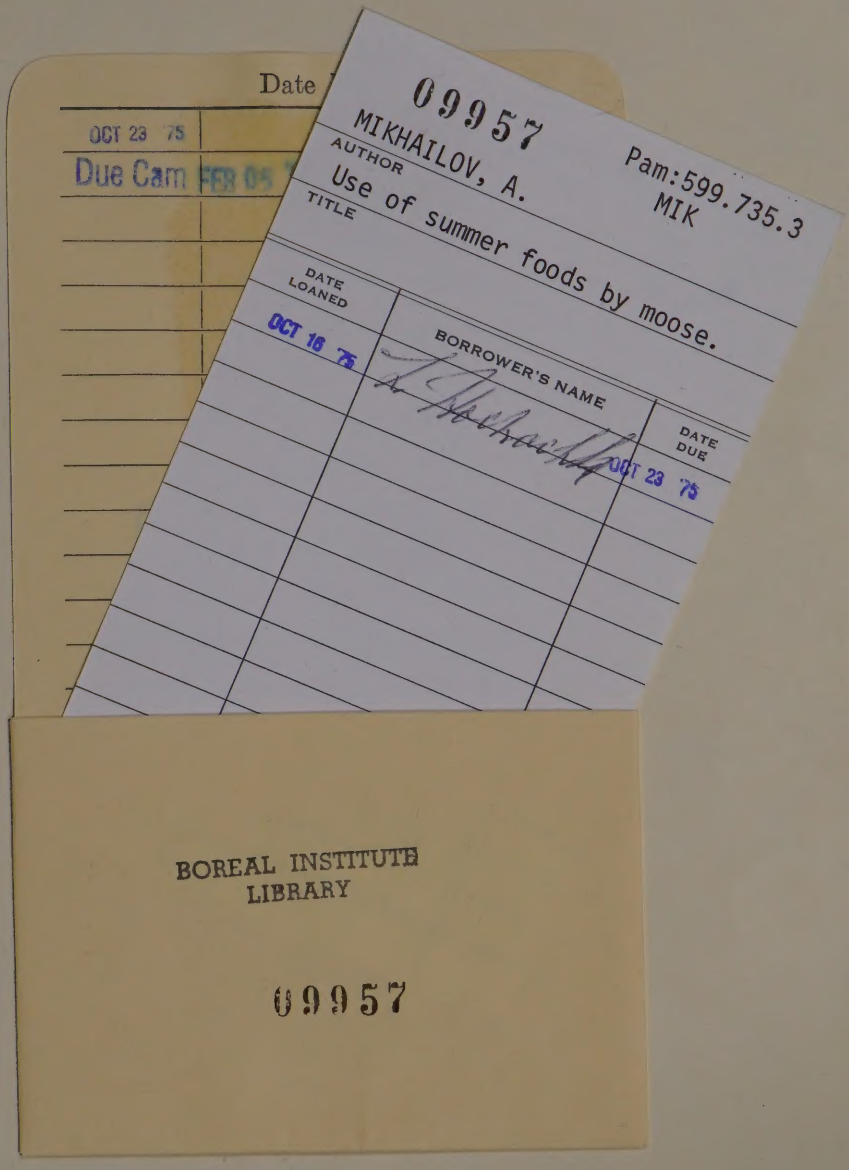
CHEMICAL CONSTITUENTS OF SUMMER MOOSE FOODS (%)

Type of Food	Number of Samples	Total Moisture	Protein	Fat	Cellulose	Nitrogen-free Extractable Matter
Aspen leaves	3	57.0	5.3	2.0	9.7	23.6
Birch leaves	3	61.8	5.2	2.7	5.6	21.9
Bush-willow (Salix caprea) leaves	3	64.8	5.7	1.5	6.9	19.3
Mountain ash leaves	3	53.9	4.4	1.6	6.7	30.5
Aspen twigs with leaves (diam. of twigs up to 0.5 cm.)	3	54.0	4.0	2.5	11.2	24.9
Birch twig with leaves (diam. of twigs up to 0.3 cm.)	5	54.5	5.0	3.3	9.2	26.4
Bush-willow twigs (diam. up to 0.3 cm.)	3	50.3	5.0	1.8	10.6	20.5
Willow-herb (Epilobium)	3	83.0	2.5	0.7	2.6	10.0
Elm-leaved Pyllonedia	3	74.7	4.2	1.3	4.6	12.9

Table 2

DIGESTIBILITY OF DRY SUMMER MOOSE FOODS

Food	Daily ration of food (Kg.)	Chemical Composition of Food (%)						
		Dry Matter	Organic Matter	Protein	Fat	Cellulose	Nitrogen-free Extractable Matter	Ash
Twigs of aspen with leaves (diam. twigs up to 0.5 cm.)	10	40,12	37,94	4,91	2,69	13,20	17,14	2,18
Twigs of birch with leaves (diam. twigs up to 0.3 cm.)	5	45,58	44,08	5,72	4,48	9,38	24,5	1,5
Coefficient of digestion of study ration		54	55	56	56	33	55	26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